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## **ECOSYSTEM THINKING – A KEY SKILL FOR THE STRENGTH AND CONDITIONING COACH**

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**Abstract:** Strength and Conditioning has become a mainstream feature of most elite sports performance programmes, and consequently employment as a strength and conditioning coach is now a well-established career track in many countries. Accompanying this growth has been a tsunami in the amount of research publications into the field, and a plethora of formal and informal educational opportunities in the field. Given this it would be logical to think that we have developed a deep understanding of what makes for a truly effective strength and conditioning coach, yet dig under the surface and it is clear that many fundamental questions remain largely unanswered suggesting that our understanding of strength and conditioning is far from complete. For example, some great programmes that use the very best evidence-based practice fail, yet other that are far less sophisticated succeed? In the reductionist world of theoretical strength and conditioning, where the quality of the programme is the only variable investigated, these anomalies should not occur. However, S&C is ultimately an applied discipline and never occurs in a vacuum, instead the programme is but one variable to be considered and multiple factors will ultimately affect the success of a programme. This article presents a novel approach to viewing S&C application in situ: that of the training ecosystem, where the relationship between multiple and multi-variate factors ultimately determines the overall success of any training programme.

**Keywords:** sportske performanse, kondicija, trening ekosistema, athletes

### **Introduction**

It has often been said that knowledge is power and the importance of knowledge continues to drive much of our strength and conditioning (S&C) education and professional development. However, whether knowledge the key differential between levels of performance of S&C coaches is open to debate. Today, there is more knowledge and information available than ever before, and this can easily be accessed via multiple sources such as the internet, magazines, journals and so on. In short, knowledge is available to a much wider audience and at an ever-increasing rate. As a result, in today's world, it could be argued that real value lies not in knowledge per se but in how this

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information is applied to practice - execution. Many strength coaches will attest to the fact that the real challenges they face in their daily rarely relate to accessing knowledge, but instead in synthesising and inputting this knowledge into practice in a constantly changing training environment – the essence of execution. Additionally, many of the critical challenges they face don't relate to programming issues, but instead relate to relate directly to the ability to execute. We have an 'execution gap' that is preventing coaches achieving their full potential. In any applied field, great execution is critical and a necessary condition for success (1) and S&C coaching is no different.

However, effective execution of a S&C programme is not a simple task, and must encompass factors that at first would appear to have little to do with the field. Our initial notion of execution focuses on what we traditionally consider the strength and conditioning process: assessing the needs of the individual/group, developing an effective programme to address these needs, and then delivering interventions to achieve the goals, whilst constantly monitoring the programme and making any necessary adjustments. (7). However, effective execution relies on addressing elements on a much wider scale than this, often involving a wide – and often eclectic – range of factors, many of which are seldom considered as playing any role in S&C. Conversations with many S&C coaches highlight the fact that many of the major challenges they have faced in setting up effective programmes have been with laying the foundations necessary to allow the programme to function and without which their programme would never have been successful. This has been critical to their work and relied on a range of elements such as building effective working relationships with athletes, coaches and support staff; building effective performance environments; effective self-management etc. Although many of these would not traditionally be thought of as influencing the S&C programme, the reality is that unless these are effectively managed, the programme will never optimally flourish, regardless of the quality of delivery.

To address this, we need to start thinking of programmes from a much wider perspective, considering the impact of multiple layers of interaction on the ability to execute the programme to maximum effectiveness. A failure to do this may hold us back from ever optimising our success – regardless of our knowledge and coaching capabilities. This article will attempt to introduce a new concept to the thinking of the S&C coach, allowing this wider perspective to be developed. Given the wide range of factors capable of influencing the success of a programme, and the variation of these factors within each individual environment, the article is not meant to be all-encompassing. Instead, it aims to be more conceptual in nature, presenting a broad view, in an attempt to widen our understanding of why some programmes are successful and others less so. In doing so, it attempts to propose questions rather than to provide solutions, with a few examples made just to illustrate points rather than being a comprehensive analysis of potential impacts.

## **A different way of thinking**

Academic study of strength and conditioning encourages us to think scientifically, to focus on that which can be measured, to isolate variables, to identify cause-and-effect relationships and judge the effectiveness of training programmes against these constraints. However, in reality the success or failure of a programme will rest upon a range of diverse factors, many of which may not appear directly related to its quality. Ron Adner, in his book, "The Wide Lens: what successful innovators see that others miss", outlines how the success of many businesses has depended using a wide lens to identify all factors impacting upon the business (1). In many instances, potentially great products were unsuccessful, not because of any fault in the product or even the company, but instead due to a failure to account for factors that were not always clearly visible, such as a lack of a supply infrastructure or the failure of a partner to deliver on a related element to the product (1). Adner proposes the idea of the business 'ecosystem', where all elements that can potentially impact upon a business are identified and managed effectively (1). Given the complexity of interactions impacting upon the effectiveness of the training programme, a similar thought process could help us understand and manage our own programmes. The development of a more global view of training, through the concept of a 'training ecosystem', would allow us to more effectively identify and subsequently manage the entire training process, laying the foundations for the effective application of the training programme itself (7). However, this requires a radical change in thinking to our standard academic view of training. As well as an almost religious emphasis on the programme, even where other factors are considered we tend to attribute what happens in a programme to events close in time and space. However, in reality, the results are often dependent upon the dynamics of a larger system in which the programme is embedded (4). So, although great execution of the programme itself is essential, and is a necessary condition for success, it is not enough. The success of the programme will ultimately depend, not only upon our own execution, but on the ability of others to execute at a similarly high level and towards the alignment of multiple factors working towards the same goals. This realisation requires a drastically different way of thinking to the typical reductionist view of strength and conditioning. It requires an outlook that considers the potential effects of every possible interaction that has the capacity to influence the programme, and effective tools via which to manage these interactions. This is where the concept of the training ecosystem is extremely valuable.

## **The training ecosystem**

Effective programmes supported by great coaching will always be vital aspects of any strength and conditioning programme. Yet we know that even these are not enough to guarantee success, so what are the potential factors that will influence whether this

will ultimately translate into successful training. Here, the concept of a training ecosystem is very useful. Biologically, an ecosystem is a community of living organisms, interacting as a system and with every interaction having an effect on the functioning of the system as a whole. In a training scenario, the ecosystem refers to the training environment and all elements that influence its functioning (7). Quite clearly, this reflects a wide range of variables, from the chief executive deciding how much to invest, the sports coach deciding how many S&C inputs will be allocated, the caretaker opening the doors of the facility at the right time – all the way through to the athletes believing in and engaging with the programme etc. All of these factors can have a large impact upon the programme and if not effectively managed may often be the difference between successful execution and average execution. In essence, each interaction within this ecosystem has the potential to enhance or negate the effectiveness of the training programme. In the world of the ecosystem, success will depend upon the alignment of variables ensuring they are working together to develop a winning programme.

This approach also throws up a challenge to the current universal approach to strength and conditioning. In this worldview, training approaches will apply equally, regardless of location, yet in an ecosystem approach this is not the case. Just as ecosystems are unique, then each and every training environment will have its own unique factors that impact directly and indirectly on its functioning (7). This individuality lies at the heart of the ecosystem approach, where the best approach will be dependent upon multiple features of the ecosystem.

### **The ‘performance environment’ – the heart of the training ecosystem**

Lying at the heart of the training ecosystem is the concept of the ‘performance environment’. Without the correct environment – ‘one in which the individual is encouraged and supported and has opportunity to learn and ‘practise’ – optimum performance will never be obtained (10). An evaluation of what makes a performance environment must start with an examination of the basic needs required to enable a person to optimise their performance. Anthropologists and scientists believe that humans thrive when the following are present in their environment: security, community, clarity, authority and respect (7). These five factors can be thought of as the bedrock of the performance environment, allowing athletes and coaches to thrive and ultimately optimise performance. The aim is to develop an environment where this bedrock is provided, together with a culture of constant improvement. This clearly relies on the development of much more than just an excellent training programme and an excellent facility: it requires an alignment and clarification of standards, values, ideals and beliefs, as well as establishing the programme’s way of doing things (11). The role

of the coach is central to developing this environment and for this, the coach needs to be well versed in skills such as communication, management, leadership etc. However, none of these skills are traditionally addressed in S&C education or development. Another challenge is that these skills are often associated domains with not naturally linked with science (which has become intricately linked with S&C), such as management, leadership, communication, marketing, negotiation and personal relationships providing further barriers to their inclusion in a comprehensive education package.

Although the concept of the 'performance environment' may seem straightforward, an analysis of what affects it shows it to be far more complex and also highly context-specific. Essentially, any person who has any input whatsoever into the system has the potential to affect the environment – positively, neutrally or negatively. Similarly, each person who has contact with anyone who inputs into the system can also affect the performance of the ecosystem. Consequently, effective leadership skills are key, ensuring that everyone is aware of the vision and is working towards the achievement of this vision whilst feeling that their contribution is valued. Here, the ability to build effective relationships with key parties, all based on trust and communication is crucial.

### **The ecosystem energy**

A key consideration of any biological ecosystem is the flow of energy within it (7). This is similarly the case for any training ecosystem, as its ultimate success will be linked to the energy people bring into, or take out of, the performance environment (7). Human energy possesses quantity, quality, focus, and intensity and a key role will be the management of this energy throughout the ecosystem, ensuring that energy is managed in each of these domains (8). Importantly, every personal interaction within the performance environment has the capacity to affect the overall energy within the system. Energy invested by athletes and coaches, and similarly the energy invested by other key players, will affect the overall ecosystem energy, and so all inputs need to be evaluated and managed appropriately. Forming the bedrock of the ecosystem energy are the athlete's interactions with the programme. Focussing on delivering the programme in a way that develops an optimal experience can transform the results of the programme (2), and may require a re-evaluation of how some aspects are delivered (7). Again, these processes are rarely the focus of attention in the current narrow focus of S&C and as a result many opportunities to enhance execution are lost.

## **Communicating the value of energy investment**

For optimal performance to occur athletes have to invest energy into the processes. For this to occur, they must be able to clearly see how the investment of their energy directly benefits them. Here we have to create the conditions whereby the athletes are full participants in the process (9). Athletes will often work off the question 'what's in it for me?', and unless the direct benefits can be effectively communicated, the results may never be optimal (7). Therefore, it is crucial to clearly communicate the programme's aims and – more importantly – the benefits the athletes will gain from investing their energy in the programme. It will often take time and relentless persuasion for the idea to gain traction (9) and thus communication needs to be a long-term process and not a one-off event (7). Importantly, the communication needs to speak directly to the athlete's key needs, not necessarily in S&C language (7). An athlete is normally far more concerned with a programme's effects on key factors they consider important to their sports performance – such as an increased number of goals, an increased number of clean breaks etc – than in a figure such as an increased 1RM squat. Developing effective communication strategies with the athlete should always be considered a major step towards ensuring a greater investment of energy in the programme.

However, here again the complexity of an ecosystem is evident. Managing ecosystem energy is about more than just managing athletes' energy, instead, one has to consider the energy inputs of coaches and any other member of the support team who has input into the system. Thus, energy management involves managing every individual providing any input and ensuring that they are all able to function in a meaningful and optimal way towards the success of the programme. A critical factor in determining the energy a person brings to an environment is the value they perceive is placed on their work, and their perceived impact on performance. Here, simple acts such as demonstrating how their work affects performance, showing gratitude for their work etc. can have a huge effect on the overall energy levels of the environment.

## **Defining the ecosystem**

Quite clearly, optimising the functioning of the ecosystem can have a major effect on its performance. For this, two tasks are required: first, an identification of the potential inputs into the system, and secondly effective management of these inputs. It is often said that you cannot manage that of which you are not aware and therefore, an essential first step is to define the ecosystem and to identify factors which have the potential to enhance or undermine the ecosystem. The identification of these potential factors must begin with an examination of the unique environment the coach is working in and a consideration of all potential inputs that can affect it both directly and indirectly (7). Just

by thinking of the training environment as an ecosystem allows a far wider perspective to be taken when viewing the potential inputs, and can help identify factors that are affecting the success of the programme directly or indirectly. In a simple model, where the programme is seen as the only variable, then only a small number of factors have the capacity of affecting the results. However, with an ecosystem view, every potential interaction can have the potential to affect the results of training and so need to be managed effectively. Once this is undertaken, a web of potential interactions starts to be developed, and here potential problems can be identified and managed. Some impacts will be direct, such as the time allocated to the programme, the investment in the facility etc.; but others will be indirect and often subtle. For example, comments made by individuals which question the value of S&C could directly affect the energy that an athlete devotes to their S&C work resulting in less-than-optimal physical adaptation, which in turn could further reinforce this scepticism – a vicious circle starts to form. Being unaware of such an issue doesn't make it go away, it just leaves it to fester for longer, potentially undermining the programme.

### **Managing your ecosystem**

Once the factors affecting the ecosystem have been identified the next step is to attempt to manage as many of these as possible. At first this may appear impossible, but whilst the ecosystem may at first appear to be a highly complex entity, effective management essentially relies on two key skills: managing oneself, and managing relationships. Interpersonal behaviour is often thought of as being the difference maker between being great and being nearly great (3).

The S&C coach should make an effort to make these relationships both genuine and built upon caring for both the person and the programme. It is unrealistic to expect that any coach will get on with all people, or that everyone will get on within the ecosystem, but working relationships can be developed when built upon a base of understanding and communication. Here again, managing relationships must start with an awareness of the key relationships that affect the programme, and although some are obvious such as the coach/athlete relationship, others are more subtle, yet still have the capacity to directly affect the functioning of the ecosystem. Many of the decisions that directly affect the programme will be made by people not directly involved in the its delivery. Many of these people will have positions of authority within the organisation, and may initially be viewed as having little direct input into the programmes. In reality, decisions made at the executive level will often be critical in the development of the programme. Decisions as to funding levels for equipment, facilities, staff, etc are made at this executive level, and unless the people making these decisions are aware of the value of the programme, and the way it operates, it is

unlikely that the programme will ever achieve the levels of funding and development the coach would hope for. Similarly, many of the daily operational decisions on scheduling, time allocation etc. will be made by the senior coaching team. Here again, unless they are aware of the full value of the programme, and how it contributes to their own goals, there will always be a compromise which will negatively affect the productivity of the programme. It is not uncommon to hear a S&C coach outline how difficult it is to work with a certain coach and how they don't understand 'what we do'. However, it is often worthwhile stepping back and considering where the problem lies. In thinking that the problem is with someone else, the S&C coach can justify their own actions, but then the problems never get resolved. Consideration must be made of how effective the working relationship with the coaching team is, how effectively the value of the programme is being communicated, and whether or not the needs of the coach have been effectively taken into consideration. Although not all conflicts can be resolved, quite often the ultimate aims are the same – developing a better player and a winning team – and so developing effective relationships along these lines will ultimately lead to a far more productive programme.

A central relationship to the success of any programme is building the relationship with the athlete. In the medical field, research has shown that the strongest predictor to patients following instruction is whether they feel the doctor actually cares (4). This has important implications for the coaching profession, as athletes will similarly need to know that you care for their development. They need to be given a clear indication of how your work will help them achieve their goals. In addition, it is important that the athlete is treated as a person and not simply as a commodity; relationships with the athlete need to work within and outside the training environment. Again, it is all about attaining the feeling of being valued which lies at the heart of the performance environment.

A critical, but often overlooked step in the management of the ecosystem is the management of the self. Essentially, a programme will often reflect the character of the leader, and if the aim is to develop a performance environment, then the impact of the coach upon this environment will be critical (7). A coach's actions have the capacity to enhance or undermine the ecosystem and so self-management is critical, requiring an honest and open appraisal of what they bring directly to the environment and an acknowledgement of their inherent strength and weaknesses. Here, the focus should never be just on knowledge but should involve a consideration of their actions and the impact of these actions on other key people. A good leader creates belief in the philosophy of the organisation and the mission, and drives everyone forward towards the attainment of this goal. A poor leader, on the other hand, can have a crippling effect on the energy of the entire ecosystem. It is always important for a coach to reflect upon their direct impact upon the ecosystem. The personality we project to the world plays a



substantial role in our success (5) and has the ability to directly influence the ecosystem's energy and functioning. Here, self-analysis is critical to effective ecosystem management. Coaches need to ask themselves questions such as: are they the type of individual who brings energy to the environment or one who leaks energy? Do they create the climate of security, community, clarity, authority and respect that underpin the ecosystem or do they undermine these through your actions? All these need to be examined in terms of the direct effect on the ecosystem. Unfortunately, all too often we are unaware of our own impact and thus not in a position to facilitate change. Again, an open communication channel where a coach is able to receive feedback from others can be helpful in developing the required self-awareness to be able to function optimally. Indeed, the gap between how we see ourselves and the way the world sees us is a good indication of our self-awareness (4). All this can help bring emotional control to our actions, which as John Wooden says is a primary component of consistency which in itself is a primary component of success (12).

## **Conclusion**

Much of the success of an S&C coach will be attributable to multiple factors, many of which are unrelated to our knowledge or the quality of the programmes we write. Ultimately, execution is critical, but effective execution requires the management of factors that are not often associated with strength and conditioning (6). Becoming aware of these factors and effectively managing them is critical to our ultimate success. The concept of a training ecosystem allows us to take a more global view of the training process, where multiple factors and inputs can affect the success or failure of the programme. Given the unique scenarios each coach faces, their ecosystem will ultimately be different and they will need to manage different variables. This article does not attempt to provide an all-encompassing view, and in reality just brushes the surface of some potential issues. However, the concept of the training ecosystem does provide a coach with a more holistic model by which they can evaluate and manage factors that could affect the success of their programme.

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